

uninterrupted parallel lines, connected however by non-soriferous veins.

The plant I am about to describe seems to do away with such a distinction; for in it the sori are parallel, uninterrupted, and might be described as remotely forked rather than reticulated, and so seldom does *any* division in the sorus take place, that it is sometimes simply continuous for two or three inches together.

*Antrophyum Grevillii* (Balfour in herb.); fronde sessili, late lineari-lanceolata, inferne præcipue attenuata, soris approximatis, parallelis, longissimis, villosis, remote furcatis.

I cannot find any described species of *Antrophyum* which at all corresponds with Dr. Sibbald's specimens. The fronds are tufted, ten to eighteen inches in length, fully an inch broad in the widest part, from whence they become insensibly narrower towards the base, which however never passes into a true stipes, although there is for the space of two or three inches an obscure midrib. The sori, which constitute the most remarkable feature, are so approximated as to be not more than a line apart, forming twelve or more uninterrupted lines, which sometimes divide at very remote intervals, but scarcely ever anastomose. The capsules, which are similar to those of the other species of the genus, are almost quite concealed by the mass of ferruginous hairs which arise along with themselves from the soriferous vein.

#### EXPLANATION OF PLATE I.

Fig. 1. *Antrophyum Grevillii*, nat. size.

- 2. A portion of the frond, showing the groove and soriferous vein.
- 3. A capsule with some of the ferruginous hairs.
- 4. Seeds.

III.—*A Description of some new Species of Fishes from the Sea surrounding the Island of Barbados.* By Sir ROBERT H. SCHOMBURGK, Ph.D., Member of the Imperial Academy Nat. Curios. &c.\*

IT is much to be regretted that we do not possess as yet a systematical description of the fishes which inhabit or frequent the sea surrounding the West Indian Archipelago. If we consider that this group of islands extends from the Orinoco to East Florida, over more than eighteen degrees of latitude, namely from  $9^{\circ}$  to  $27\frac{1}{2}^{\circ}$  north, and over twenty-seven degrees of longitude, the interest attached to this great expanse of sea may be conceived. It is true we find occasionally a description of some so-

\* Reprinted from the 'History of Barbados.'

linary specimens from the West Indies in the works of Catesby, Bloch, Schneider, and in the great systematical work of Cuvier and Valenciennes, but I am not aware that there exists a local marine fauna of any of these islands which might assist in the compilation of a more extensive ichthyological work on the West Indies.

The great interest which I feel in this science induced me, during my late sojourn in the island of Barbados, one of the group of the West Indies\*, to make a collection of such fishes as are found in the sea which surrounds it, and in which I was most materially assisted by C. K. Bishop, Esq., of Orange Hill in Barbados. The greater number of these fishes were determined by Professor Dr. Müller and Dr. Troschel of Berlin, and have been published, with others which I collected, in my 'History of Barbados†.' The species and varieties which are enumerated or described amount to one hundred and twenty. It is evident that this list contains only a small portion of the finny tribe of the surrounding sea, and I doubt not that if some ichthyologist were to dedicate himself to this district alone, he would quadruple that number. Indeed the fishes described in my work do not even contain all the species which were collected in Barbados, as a number which were procured after my departure arrived too late to be forwarded to Berlin, and I presented this collection to the British Museum. The distant hope that Dr. Troschel would visit London in the course of the last summer prevented me from taking any further measures for their determination.

When the systematical arrangement of the numerous treasures of the ichthyological department of the British Museum is once entrusted to some good ichthyologist, and a description of the new genera and species is combined with it, (and I have been given to understand there are some hopes of seeing this accomplished,) it will then prove much easier to compile a marine fauna of the West Indian Archipelago, to which the present enumeration of the fishes around Barbados may prove a useful contribution.

As my 'History of Barbados' possesses only local interest and is not likely to fall into the hands of naturalists generally, I avail myself of the greater publicity of the 'Annals of Natural History' to present herewith a description of the new genus *Caprophonus*, and of such species of known genera as Professor Müller and Dr. Troschel considered to be new among the collection, or where

\* The position of Bridgetown, the city of the island, is in latitude  $13^{\circ} 4'$  north and longitude  $59^{\circ} 37'$  west from Greenwich.

† 'The History of Barbados, comprising a geographical and statistical description of the island; a sketch of the historical events since the settlement, and an account of its geology and natural productions.' London, Longman, Brown, Green and Longmans, 1848, pp. 665-678.

the specimens slightly deviated from former descriptions. I beg to observe, that to the descriptions of these two distinguished ichthyologists inverted commas have been affixed for the sake of distinction. The trivial names are those by which the fish is known to the fishermen in Barbados.

I. ACANTHOPTERI, Müller.

Fam. PERCOIDEI, Cuv.

*Serranus impetiginosus*, Müll. et Tr. nov. spec. Rock Hind.  
D. 11 + 17 : A. 3 + 8.

“The body of the fish is covered with round dark-coloured spots of the size of a pea. They are less numerous on the fins and the snout; a larger oblong black spot embraces the three last spines; and the first soft ray of the dorsal fin; another spot of similar size and colour is behind the dorsal fin on the back of the tail.”

*Serranus ouatalibi*, Cuv. et Val. Hist. Nat. des Poissons, ii. p. 381.  
Yellow Velvet Fish. D. 8 + 16 : A. 3 + 8.

“The upper jaw is covered with numerous little scales; this fish does not belong therefore to Cuvier’s group of ‘the Merous.’”

*Serranus quativere*, Cuv. et Val. *l. c.* ii. p. 383. Yellow Velvet Fish. D. 9 + 15 : A. 3 + 9 : P. 17.

“Upper jaw scaly, preoperculum with a concavity above the angle, operculum with three flat spines. The prevailing colour of this fish is yellow; from the bony part of the dorsal fin extends a broad black spot to the anal fin; on the head and upon the sides of the body are a few white shining dots surrounded by darker circles, and on the back of the tail two black spots: the caudal fin is truncated. The colour of the upright fins seems to have been red; the rhombic pectorals and ventrals are yellow.”

*Plectropoma monacanthus*, Müll. et Tr. nov. spec. Jew Fish (?).  
D. 11 + 19 : A. 3 + 9 : P. 16.

“This fish is distinguished from all other species of the genus *Plectropoma* by a single strong spine in front of the angle of the preoperculum: the colour is brownish with darker spots upon the sides, and some roundish spots of a lighter colour on the belly; the pectoral fins are rounded.” It lives in shallow waters along the coast.

*Centropristes auro-rubens*, Cuv. et Val. *l. c.* iii. p. 45. Plump-head Snapper.

“The species from Barbados possesses strong spines on the lower margin of the preoperculum.”

*Centropristes macrophthalmus*, Müll. et Tr. nov. spec. Brass-scale Snapper. D. 10 + 11 : A. 3 + 8 : Length one foot\*.

“The breadth of the suborbital bone, under which the upper jaw can be hid in a great measure, is equal to half the diameter of the eye. The eye is larger than the space between the eyes, and amounts to a third of the length of the head. The bone over the eye is compressed. The colour is red with numerous darker spots upon the sides of the body and the angles of the scales. The last ray of the dorsal and anal fin is elongated. It resembles in a great measure *Serranus filamentosus* of Cuv. et Val. (*l. c.* vi. p. 508), which must be removed from the genus *Serranus* and added to *Centropristes*, where it will occupy a place near the species above described. This observation refers likewise to the following.”

*Centropristes oculatus*, Müll. et Tr. *Serranus oculatus*, Cuv. et Val. *l. c.* ii. p. 266. Bream or Brim.

The species of this genus are abundant in the sea around Barbados. They are used as food, although they cannot be compared to the “Black Harry” of the Americans, which belongs to this genus, and is one of the most esteemed for the table.

*Priacanthus boops*, Cuv. et Val. *l. c.* iii. p. 103. Goggle-eye Snapper (?). D. 10 + 13 : A. 3 + 13.

“The Barbados specimen has perpendicular bands on the back, and several dark spots between the rays of the perpendicular fins. A specimen which the Berlin Museum received from the Museum in Paris, shows also traces of coloured bands.”

#### Fam. MÆNIDES.

*Gerres Zebra*, Müll. et Tr. nov. spec. Shad. D. 9 + 10 : A. 3 + 7.

“The snout is short, the eye large, the preoperculum without denticulation. The colour is silvery, steel-blue above; five or seven vertical bands give it some resemblance to *G. subfasciatus* of Cuv. et Val. The height of the body is a third of its length, and contains  $2\frac{1}{2}$  times the length of the second and third spine in the dorsal fin, and three times of the second spine in the anal fin.”

The Barbados Shad, although, properly speaking, a sea-fish, is frequently found in ponds, where they are preserved, and increase considerably in size and improve in taste.

\* By a misprint in the ‘History of Barbados,’ p. 666, the length is erroneously stated as one inch.—R. H. S.

Fam. SQUAMIPENNES, Cuv.

*Pempheris Schomburgkii*, Müll. et Tr. nov. spec.\* Hatchet Fish.

It is the opinion of Müller and Troschel, "that this species differs from *Pempheris mexicana* of Cuv. et Val. which is found in the Pacific Ocean. It agrees in form with the other, but the West India species has a spine less in the dorsal fin."

Fam. SCOMBEROIDEI, Cuv.

*Caprophonus*, Müll. et Tr. nov. gen.

"This interesting new genus agrees with *Capros* in general, but it may be distinguished from it by a single series of teeth in the upper and lower jaw; by the roughness of the maxillary, and by the three spines of the anal fin, which form a fin separate from that of the soft rays."

*Caprophonus Aurora*, Müll. et Tr. Hatchet Fish (?). D. 8 + 34 : A. 3 + 32 : V. 1 + 5. (B. 5.)

"The body is much compressed, and the height nearly equals the length. The profile from the highest part of the back to the mouth shows two depressions; the anterior is situated before the eyes, the other near the summit of the back. The anterior line of the profile has almost a rectangular direction toward the posterior line. The profile of the belly is circular. The head forms one-third of the whole length of the fish, excluding the caudal fin. The mouth is a little protractile, and nearly vertical when closed, and the lower jaw forms the end of the mouth. The intermaxillary is inserted into a deep incisure at the front, and its hinder apophysis separates the two maxillaries. The genus *Capros* has not that incisure at the front, and the two maxillaries meet together in such a manner that the apophysis of the intermaxillary is inserted under the maxillaries. Both jaws are armed with a single row of close-set small conical teeth. The large eyes are in the middle of the height of the body. The distance of the eye from the snout and from the other eye is equal to the diameter of an eye. Over each eye is a point from which lines radiate on all sides. The posterior margin of the preoperculum is rectilinear and nearly vertical; the lower margin is rounded and armed with rough teeth. The nostrils are near the eyes. The dorsal fin begins on the summit of the back, with a very short pointed spine; the second spine is three times larger than the first, the third spine is five times larger than the second, and is

\* Professor Dr. Müller and Dr. Troschel have had the goodness to describe this new species under the above specific name. While I recognise the kindness which dictated this distinction, I feel reluctant to be the herald of the honour bestowed upon me.—R. H. S.

contained five times in the height of the body; it is thick and streaked longitudinally on its sides, and rough on the anterior side. The other spines are shorter, and decrease in size successively. The spines of the dorsal fin are eight in number; the soft part of the fin contains thirty-four rays nearly equal in size; they are covered on the base with scales, and cannot be put down. A membrane joins the three spines of the anal fin, but they are not united with the soft part of the fin, and form therefore a separate fin; the first of these spines is the largest. The soft anal fin has thirty-two rays similar to the soft rays of the dorsal fin. The pectoral fins are attached to the body at two-fifths of its whole height. The ventrals contain a very strong streaked spine; the soft rays are rough on the internal side in front and on the external side behind. The caudal fin is truncated. The scales are large and armed with small spines on the uncovered part, as in *Capros*. The lateral line ascends at first abruptly parallel to the profile in front, makes an angle beneath the summit of the body, descends rectilinear to the tail and follows it horizontally. The colour of the fish is red; the length of the specimen six inches, the height five inches."

Fam. MUGILOIDEI, Cuv.

*Acherina stipes*, Müll. et Tr. nov. spec. Loggerhead Fry.  
D. 5—1+9: A. 1+12.

"This species agrees with *A. Boieri* of Risso in form, largeness of the eyes, and in the position of the dorsal fin over the end of the ventrals. The head is broader than the diameter of an eye, and flat above. From the snout extend two furrows backwards; on each side of the upper surface of the head is a sharp undulated edge, forming the upper margin of the orbit. The teeth are numerous and distinct on both jaws, and on the palate: the caudal fin is forked."

Fam. GOBIOIDEI, Cuv.

*Clinus pectinifer*, Cuv. et Val. *l. c.* xi. p. 574. Rock Fish or Rocker.

"There are two varieties of this species; the sides of the body of one have a reticulated appearance, and those of the other are barred with six perpendicular bands, which extend to the superior margin of the dorsal fin. The anal fin is likewise marked by six perpendicular bands."

*Clinus capillatus*, Cuv. et Val. D. 18+8: A. 2+19: P. 14:  
V. 3: C. 12. Yellow-fin Rock Fish.

*Gobius Bishopi*, Müll. et Tr. nov. spec. Rocker.

"This new species belongs to that group of the genus *Gobius*,

of which the upper rays of the pectoral fins end in numerous threads, and approaches perhaps nearest to *G. soporator* (Cuv. et Val. *l. c.* xi. p. 56). The profile is somewhat inclined, and the cleft of the mouth is therefore oblique as far as under the eye. The space between the eyes is scarcely equal to a diameter of the eye. On both jaws is a band of villiform teeth; those in the outer row are stronger and larger. Both dorsal fins are of equal height; the last ray of the second is not elongated; the caudal fin is rounded. The prevailing colour is a yellowish gray, with four large dark spots like broad bands: several irregular spots of smaller size are beneath them, and there are likewise some on the tail: length four inches\*.”

Fam. FISTULARES.

*Aulostoma coloratum*, Müll. et Tr. *Trompetero colorado*, Parra, p. 65. t. 30. f. 2. Shallow-water Trumpeter. D. 9-25: A. 26: P. 16.

“This beautiful fish has much the resemblance of *A. chinensis* of Cuvier (*Fistularia chinensis*, Bloch, t. 388); and Bloch and Schneider observe in the ‘Systema,’ that it lives in the Indian and American Ocean; but the above species from Barbados is without doubt different from the true Chinese *Aulostoma*. Both species agree that the maxillary is marked with a black band, that on the nostrils are found two black spots, and in the presence of a black longitudinal band in the front of the dorsal and anal fin in about the middle of the height; however the specimen from Barbados, instead of being covered with brownish spots as the Indian species, shows white spots on the sides of the head without any brown ones, with the exception of three brown spots, which form a longitudinal row on each side of the head. On the back are on each side two rows of black spots; on the sides of the body seven narrow white longitudinal bands; and on the belly beneath, in the middle, is a row of black spots, occupying the second half of the space between the pectorals and ventrals.”

II. ANACANTHINI, Müll.

Fam. PLEURONECTIDES, Cuv.

*Rhombus ocellatus*, Agass. et Spix, *Pisces Brasil.* p. 85. t. 6. Flounder or Plaice. D. 95: A. 74: P. 12: V. 6.

This fish belongs to the Turbots, and “agrees in general with the description and the figure of Agassiz and Spix, and likewise

\* At my request, Professor Dr. Müller and Dr. Troschel named this new species after C. K. Bishop, Esq. of Orange Hill in Barbados, to whose indefatigable assistance I am indebted for the greater part of this fine collection of fishes.—R. H. S.

in the number of rays. The ventrals have on each side six rays ; the upper margin of the upper eye, and the lower margin of the lower eye are ornated with little threads : the length of the fish is nine inches." It is a very delicate fish.

### III. PHARYNGOGNATHI, Müll.

#### Fam. LABROIDEI CYCLOIDEI, Müll.

*Cossyphus bodianus*, Cuv. et Val. l. c. xiii. p. 103. Yellow Coat Chub. D. 12 + 10 : A. 3 + 12 : P. 16.

"The species from Barbados has a black spot in front of the dorsal fin ; the basis of the membrane between the spines of the dorsal fin is orange-coloured, and the angle of the ventrals is of a brimstone colour."

*Julis maculipinna*, Müll. et Tr. nov. spec. Dog Chub. D. 9 + 11 : A. 3 + 11 : P. 13.

"This fish is distinguished from all American species of the genus *Julis* by its colour. On the dorsal fin, between the fifth and seventh spine, is a black spot, and in the middle of the soft part of the same fin is a longitudinal band, the colour of which cannot be discerned, as the specimen is preserved in spirit. Beneath the lateral line extends on each side a large dark band (probably of violet colour) from the head to the caudal fin, with a spot of the same colour under it, situated in about the middle of the body. A blue band extends from the snout through the eye to the operculum, and above it is another shorter band of the same colour extending from the snout to the eye : both bands are united, forming a V. On the nape are three transverse bands of the same colour, and the cheeks are marked by three white bands. On the base of the pectorals is a little black spot ; the caudal fin is truncated."

#### Fam. LABROIDEI CTENOIDEI, Müller.

*Glyphisodon taurus*, Müll. et Tr. nov. spec. Dove-tail Fish. D. 12 + 12 : A. 2 + 10.

"The teeth are notched. The cleft of the mouth does not reach the eye ; on the angle of the mouth the suborbital bone is nearly as large as the diameter of the eye ; the space between the eyes is nearly equal to one and a half diameter of an eye. The profile is less steep than in *G. saxatilis*, and the five vertical bands are less distinct in the present species. Its length is seven inches."

*Pomacentrus leucostictus*, Müll. et Tr. nov. spec. D. 12 + 15 : A. 3 + 13. Black Pilot. Beau Gregory.

"This species agrees with *P. fuscus* of Cuv. et Val. ; it distin-

guishes itself however by numerous white dots, which are especially abundant beneath the dorsal and above the anal fin, where one is placed on each scale."

In the younger specimens the white dots are much more distinct, and this may have induced the fishermen to give them the name of Beau Gregory; the full-grown specimen is called Black Pilot.

Fam. SCOMBERESOCES, Müll.

*Exocætus Roberti*, Müll. et Tr. nov. spec. The common Flying Fish. D. 11 : A. 12.

"This species resembles the *E. cyanopterus* of Cuv. et Val., but it differs in the dorsal fin, which is much lower and of one colour; the pectorals are diaphanous and dark-coloured, and on the inner part near the base is a large white spot."

The Flying Fish are too well-known to demand a special description. The common Flying Fish (*E. Roberti*) is so abundant in some seasons of the year about Barbados, that they constitute an important article of food, and during the season a large number of small boats are occupied in fishing. They are very delicate and tender; some experiments have been made to preserve them by salting and smoking, and with perseverance I have no doubt that they would prove successful. Such large numbers are occasionally caught that they meet with no sale and are thrown away, or used as manure.

IV. PHYSOSTOMI, Müll.

Fam. CLUPEOIDEI, Cuv. et Müll.

*Alosa apicalis*, Müll. et Tr. nov. spec. Red Ear Pilchard. D. 18 : A. 17.

"The lower jaw surpasses the upper in length; the maxillary reaches to the first third of the eye, and the diameter of that organ is larger than half the size of the head. The scales are large, forming nine rows on each side of the body; they are silvery, and each scale is marked on the belly with a copper-coloured spot. The point of the snout above and beneath is black; on the front there is a small black longitudinal band, and over each eye a black spot. The point of the dorsal fin, and the posterior edge of the forked caudal fin are black; the ventrals are attached under the middle of the dorsal fin."

*Alosa Bishopi*, Müll. et Tr. nov. spec. The Sprat.

"This species agrees in some points with the former; it has however a black spot behind the operculum which is not to be observed in the *A. apicalis*, and the dorsal fin is without the black mark. It possesses likewise, like *Alosa tyrannus* of De Kay (Zool.

of New York, iv. p. 258. t. 13), the indistinct dark longitudinal lines; but the eye of the Barbados species is larger, its diameter being equal to half the height of the head. There are eleven rows of scales on each side of the body; the ventrals are fixed under the middle of the dorsal fin; the caudal fin is forked. Length four and a half inches."

This species has been named in honour of Mr. Bishop.

The Sprats are much esteemed in the West India islands. A species called the Yellow-tailed Sprat proves unfortunately poisonous at certain periods of the year in some of the islands, chiefly among the Leeward and Virgin islands.

#### V. PLECTOGNATHI, Cuv.

##### Fam. BALISTINI.

*Monacanthus tomentosus*, Bloch, var.  $\alpha$ , Systema, ed. Schneider, p. 467. Cuckold or Horned Coney Fish, Hughes. D. 1 + 35 : A. 30 : P. 13 : C. 12.

"This fish, which has been considered a variety, is without doubt a different species." It is much used as food, and when well-stuffed and baked considered a delicacy. It resembles the following in its general appearance.

To this section belongs likewise a remarkable fish, which appears to be identical with, or a closely allied species of *Triodon bursarius*, Reinw. It possesses a dew-lap nearly as long as the body, which it is able to inflate. I received a specimen from Barbados, which is at the British Museum.

##### Fam. GYMNODONTES.

*Tetrodon (Cheilichthys) pachygaster*, Müll. et Tr. nov. spec. Jug Fish. D. 10 : A. 9 : P. 15 : C. 9.

"This new species of *Tetrodon* is smooth all over, of a light brown colour, with darker spots on the back. The space between the eyes is equal to two diameters of the eye, and the space to the top of the snout is of a similar extent. The nostrils are nearer to the eye than to the snout, and they are papillary with two apertures. The dorsal fin stands before the anal; the caudal is truncated, but the upper and lower points are somewhat elongated. Length fourteen inches." It is very scarce around Barbados.

#### VI. PLAGIOSTOMI, Cuv.

##### Fam. SQUALIDÆ.

*Carcharias (Prionodon) obscurus*, Müll. et Henle, Plagiostomen, p. 46. Puppy Shark.

"The denticulation of the upper jaw is a little more robust on the base than on the top in the Barbados species."